



PTO/SB/21 (09/04)

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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	10/650,509
Filing Date	August 27, 2003
First Named Inventor	Jeffrey Hubbell
Art Unit	1651
Examiner Name	Leon B. Lankford, Jr.
Attorney Docket Number	CIT 2606 CIP CON

**ENCLOSURES (Check all that apply)**

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Fee Transmittal Form<br><input type="checkbox"/> Fee Attached<br><input type="checkbox"/> Amendment/Reply<br><input type="checkbox"/> After Final<br><input type="checkbox"/> Affidavits/declaration(s)<br><input type="checkbox"/> Extension of Time Request<br><input type="checkbox"/> Express Abandonment Request<br><input checked="" type="checkbox"/> Information Disclosure Statement<br><br><input type="checkbox"/> Certified Copy of Priority Document(s)<br><input type="checkbox"/> Reply to Missing Parts/<br>Incomplete Application<br><input type="checkbox"/> Reply to Missing Parts<br>under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)<br><input type="checkbox"/> Licensing-related Papers<br><br><input type="checkbox"/> Petition<br><input type="checkbox"/> Petition to Convert to a<br>Provisional Application<br><input type="checkbox"/> Power of Attorney, Revocation<br>Change of Correspondence Address<br><input type="checkbox"/> Terminal Disclaimer<br><input type="checkbox"/> Request for Refund<br><input type="checkbox"/> CD, Number of CD(s) _____<br><input type="checkbox"/> Landscape Table on CD | <input type="checkbox"/> After Allowance Communication to TC<br><input type="checkbox"/> Appeal Communication to Board<br>of Appeals and Interferences<br><input type="checkbox"/> Appeal Communication to TC<br>(Appeal Notice, Brief, Reply Brief)<br><input type="checkbox"/> Proprietary Information<br><input type="checkbox"/> Status Letter<br><input checked="" type="checkbox"/> Other Enclosure(s) (please identify<br>below):<br><br>three (3) pages of PTO-1449;<br>fourteen (14) references; return<br>postcard |
|--|--|--|

Remarks

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name	Pabst Patent Group LLP		
Signature			
Printed name	Tiffany B. Salmon		
Date	August 10, 2005	Reg. No.	55,589

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Ronna Berman	Date	August 10, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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CIT 2606 CIP CON / 077043-00009

AUG 12 2005

PTO/SB/17 (12-04)

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Effective on 12/08/2004  
Fees pursuant to the Consolidated Appropriations Act, 2005 (P.L. 109-171, R. 4818).**FEE TRANSMITTAL**  
**For FY 2005**☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$ ) 0.00**Complete if Known**

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Attorney Docket No.	CIT 2606 CIP CON

**METHOD OF PAYMENT (check all that apply)**
☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_

☒ Deposit Account Deposit Account Number: 50-3129 Deposit Account Name: Pabst Patent Group LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES**

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
35 - 35 or HP =	0	x	=			

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
4 - 4 or HP =	0	x	=

HP = highest number of independent claims paid for, if greater than 3

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).


Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x	=	

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other: \_\_\_\_\_

**SUBMITTED BY**

Signature		Registration No. (Attorney/Agent)	55,589	Telephone	(404) 879-2153
Name (Print/Type)	Tiffany B. Salmon		Date	August 10 2005	

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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CIT 2606 CIP CON / 077043-00009



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Jeffrey Hubbell, Jason Schense Andreas Zisch, and Heike Hall

Serial No.: 10/650,509

Art Unit: 1651

Filed: August 27, 2003

Examiner: Leon B. Lankford, Jr.

For: *ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE  
ENGINEERING*

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §1.56 and 37 C.F.R. §1.97, Applicants submit a Supplemental Information Disclosure Statement, including three (3) pages of Form PTO-1449 and a copy of fourteen (14) documents cited therein. Pursuant to the waiver in the notice entitled "Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications Filed After June 30, 2003" published on August 5, 2003 in 1273 OG 55, copies of U.S. Patents are not enclosed. Copies will be provided upon request, however.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any fees to Deposit Account No. 50-3129.

### U.S. Patents

<u>Number</u>	<u>Issue Date</u>	<u>Patentee</u>	<u>Class/Subclass</u>
5,171,670	12-15-1992	Kronenberg, et al.	435/68.1
5,202,247	04-13-1993	Kilburn, et al.	435/195
5,428,014	06-27-1995	Labroo, et al.	514/12
5,582,862	12-10-1996	Reed	424/145.1
5,641,670	06-24-1997	Tunkel, et al.	435/240.2
5,773,577	05-30-1998	Capello	530/350
5,840,837	11-24-1998	Krstenansky, et al.	530/324
5,877,153	03-02-1999	Harris, et al.	514/13
5,958,874	09-28-1999	Clark, et al.	514/2
6,054,122	04-25-2000	MacPhee, et al.	424/94.4
6,117,425	09-12-2000	MacPhee, et al.	424/94.64
6,136,564	10-24-2000	Kopetzki, et al.	435/69.4
6,197,325	03-06-2001	MacPhee, et al.	424/426
6,559,119	05-06-2003	Burgess, et al.	514/2

### Foreign Documents

<u>Number</u>	<u>Publication Date</u>	<u>Patentee</u>	<u>Country</u>
200 10 297	08-31-2000	ETH Zurich & University of Zurich	DE
WO 92/02620	02-20-1992	Regeneron Pharmaceuticals	PCT
WO 92/09301	06-11-1992	The American Red Cross	PCT
WO 94/20133	09-15-1994	The American Red Cross	PCT
WO 96/17633	06-13-1996	The American Red Cross	PCT
WO 00/64481	11-02-2000	ETH Zurich & University of Zurich	PCT
WO 03/040235	05-15-2003	Universitaet Zuerich and Eidgenoessisch Technische Hochschule Zuerich	PCT

### Publications

GRAINGER, et al., "Poly(dimethylsiloxane)-poly(ethylene oxide)-heparin block copolymers. I. Synthesis and characterization" *J. Biomed. Mater. Res.* 22(3):231-249 (1988).

LUGINBUEHL, et al., "Localized delivery of growth factors for bone repair" *European Journal of Pharmaceutics and Biopharmaceutics* 58:197-209 (2004).

RIXON, et al., "Do the non-catalytic polysaccharide-binding domains and linker regions enhance the biobleaching properties of modular xylanases?" *Appl. Microbiol. Biotechnol.* 46(5-6):514-520 (1996).

SAKIYAMA-ELBERT and HUBBELL, "Controlled release of nerve growth factor from a heparin-containing fibrin-based cell ingrowth matrix" *Journal of Controlled Release* 69:149-158 (2000).

SAKIYAMA-ELBERT, et al., "Development of growth factor fusion proteins for cell-triggered drug delivery" *FASEB J.* 15:1300-1302 (2001).

SEIBEL, et al., "Transfection of mitochondria: strategy towards a gene therapy of mitochondrial DNA diseases" *Nucleic Acids Res.* 23(1):10-17 (1995).

ZISCH, et al., "Covalently conjugated VEGF-fibrin matrices for endothelialization" *Journal of Controlled Release* 72:101-113 (2001).

### Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,



Tiffany B. Salmon  
Reg. No. 55,589

Dated: August 10, 2005

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Substitute for form 1449A/PTO



# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

## Complete if Known

Application Number	10/650,509
Filing Date	August 27, 2003
First Named Inventor	Jeffrey Hubbell
Group Art Unit	1651
Examiner Name	Leon B. Lankford, Jr.
Attorney Docket Number	CIT 2606 CIP CON

Sheet 1 of 3

## U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	US Patent Document		Name of Patentee or Applicant of Cited Document	Date of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
		5,171,670		Kronenberg, et al.	12-15-1992	
		5,202,247		Kilburn, et al.	04-13-1993	
		5,428,014		Labroo, et al.	06-27-1995	
		5,582,862		Reed	12-10-1996	
		5,641,670		Tunkel, et al.	06-24-1997	
		5,773,577		Capello	05-30-1998	
		5,840,837		Krstenansky, et al.	11-24-1998	
		5,877,153		Harris, et al.	03-02-1999	
		5,958,874		Clark, et al.	09-28-1999	
		6,054,122		MacPhee, et al.	04-25-2000	
		6,117,425		MacPhee, et al.	09-12-2000	
		6,136,564		Kopetzki, et al.	10-24-2000	
		6,197,325		MacPhee, et al.	03-06-2001	
		6,559,119		Burgess, et al.	05-06-2003	

## FOREIGN PATENT DOCUMENTS

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		Office. <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
		DE	200 10 297		ETH Zurich & University of Zurich	08-31-2000		
		PCT	WO 92/02620		Regeneron Pharmaceuticals	02-20-1992		
		PCT	WO 92/09301		The American Red Cross	06-11-1992		

Examiner's Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

<sup>1</sup> Unique citation designation number <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SENT TO: Assistant Commissioner for Patent, Washington, DC 20231.

Substitute for form 1449A/PTO				Complete if Known	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Application Number	10/650,509
				Filing Date	August 27, 2003
				First Named Inventor	Jeffrey Hubbell
				Group Art Unit	1651
				Examiner Name	Leon B. Lankford, Jr.
Sheet	2	of	3	Attorney Docket Number	CIT 2606 CIP CON

[illegible]

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>2</sup>
		Office. <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
		PCT	WO 94/20133		The American Red Cross	09-15-1994		
		PCT	WO 96/17633		The American Red Cross	06-13-1996		
		PCT	WO 00/64481		ETH Zurich & University	11-02-2000		
		PCT	WO 03/040235		Universitaet Zuerich and Eidgenoessisch Technische Hochschule Zuerich	05-15-2003		
Examiner's Signature						Date Considered		

<sup>1</sup> Unique citation designation number <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant to place a check mark here if English language Translation is attached.

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		Attorney Docket Number	CIT 2606 CIP CON
Sheet	3	of	3

OTHER ART – NON PATENT LITERATURE DOCUMENTS			
Examiner's Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
		GRAINGER, et al., "Poly(dimethylsiloxane)-poly(ethylene oxide)-heparin block copolymers. I. Synthesis and characterization" <i>J. Biomed. Mater. Res.</i> 22(3):231-249 (1988).	
		LUGINBUEHL, et al., "Localized delivery of growth factors for bone repair" <i>European Journal of Pharmaceutics and Biopharmaceutics</i> 58:197-209 (2004).	
		RIXON, et al., "Do the non-catalytic polysaccharide-binding domains and linker regions enhance the biobleaching properties of modular xylanases?" <i>Appl. Microbiol. Biotechnol.</i> 46(5-6):514-520 (1996).	
		SAKIYAMA-ELBERT and HUBBELL, "Controlled release of nerve growth factor from a heparin-containing fibrin-based cell ingrowth matrix" <i>Journal of Controlled Release</i> 69:149-158 (2000).	
		SAKIYAMA-ELBERT, et al., "Development of growth factor fusion proteins for cell-triggered drug delivery" <i>FASEB J.</i> 15:1300-1302 (2001).	
		SEIBEL, et al., "Transfection of mitochondria: strategy towards a gene therapy of mitochondrial DNA diseases" <i>Nucleic Acids Res.</i> 23(1):10-17 (1995).	
		ZISCH, et al., "Covalently conjugated VEGF-fibrin matrices for endothelialization" <i>Journal of Controlled Release</i> 72:101-113 (2001).	

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